Draft

Defense Finance and Accounting Service (DFAS)

DFAS Corporate Information Infrastructure (DCII)

DCII TestDirector® User's Guide

Technology Services Organization
Pensacola, FL

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Table of Contents

1.0 Introduction

1.1 Purpose

The purpose of the manual is to provide procedures and guidelines specific to the use of TestDirector® (TD) within the DCII software-testing environment. This document is not all encompassing rather it supplements documentation provided by the software manufacturer, on-line help and other provided guidance.

1.2 Background

DCII software testing has primarily been manual process utilizing PC word processing, e-mail and spreadsheet technology for test planning, development, execution and tracking. As a means to automate the software testing process, DFAS selected TestDirector® from Mercury Interactive Corp. as the core application for test automation and to provide a centralized repository for test components and test artifacts.

The initial use of TD by DCII began in 1999 by both TSO-PE and DFAS/CO employing Microsoft Access databases on local network configurations for test script development and execution of manual scripts. In 2000 DFAS/CO migrated to an Oracle database which allowed development of an interface between TD and CMIS for TDR creation and tracking. This groundwork led the way for deployment of TD across all DCII software testing.

Deployment of TD for the DCII testing community is the first of many steps necessary in obtaining an automated testing environment adaptable to an ever-changing software development process. Planning and consideration for employment of other test automation tools, data driven testing and migration to a web-based architecture is essential to the success of TD for DCII.

1.3 References

- Mercury Interactive, TestDirector® Administrator's Guide, Version 6.0
- Mercury Interactive, TestDirector® Integrated Test Management User's Guide, Version 6.0
- Mercury Interactive, TestDirector® Open Test Architecture Reference Guide, Version 6.0
- Mercury Interactive, TestDirector® Installation Guide, Version 6.0

2.0 System Overview

TestDirector® is a Windows based COTS application employing an Oracle database to provide an efficient method for creating test scripts, scheduling and executing

tests, and collecting test results. With its reporting and analysis capability, TestDirector® can be used to generate status reports and statistical charts to demonstrate overall progress and status of the test event. It also provides a scheduling capability and an initiation point to launch automated test scripts such as those created by WinRunner® and LoadRunner®.

3.0 System Environment

TestDirector® as deployed for version 6.02 Enterprise Edition, is a client/server application employing TD clients and a database server. The Oracle database server is located on a HP UNIX platform at DFAS Indianapolis accessible from anywhere within the DFAS ELAN. The production environment is depicted the figure below.

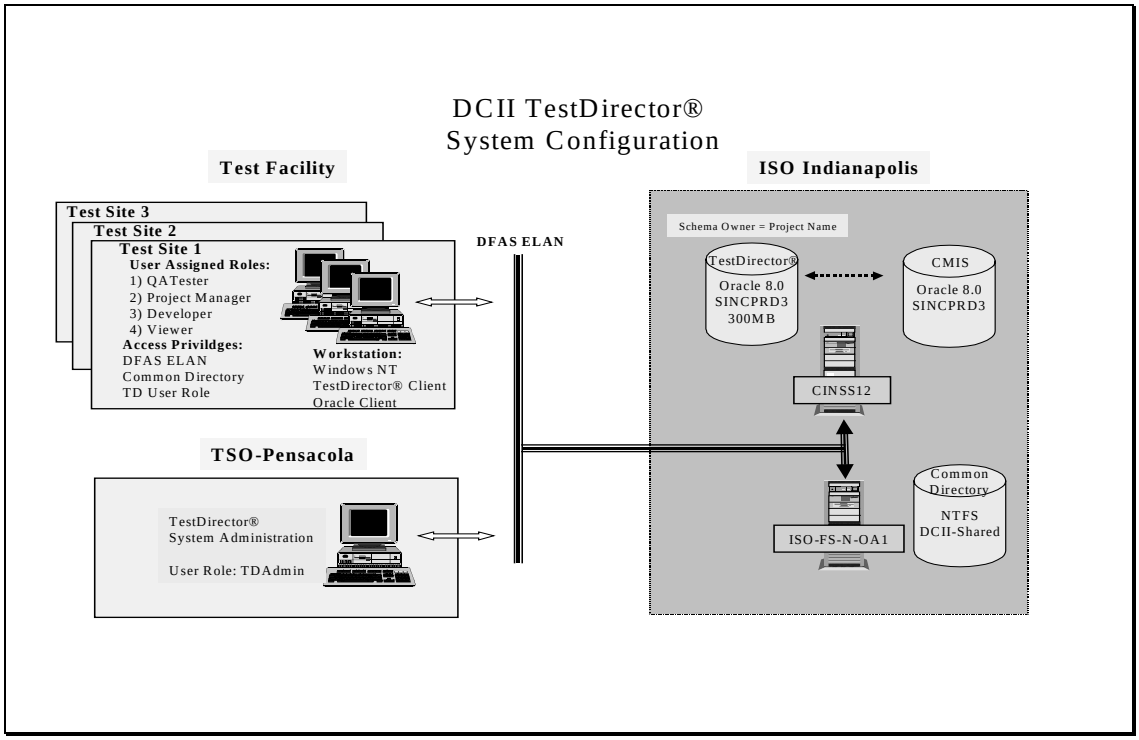

Figure 1 TestDirector® Components

3.1 Common Directory

The Common Directory stores project information shared by multiple TD users such as database connection information, custom reports and test scripts. The Common Directory is defined during the client software installation or may be changed using the Project Administration Utility or the Local Setting utility (LocalSet.exe) located in the bin directory. The following directory structure is similar to what is used for DCII.

DCII	DCII-shared/testing/TD	Common Directory
SIT0301	DCII-shared/testing/TD/DCII	TD Project
NSOA0301	DCII-shared/testing/TD/DCII	TD Project
SIT/IFVT0302	DCII-shared/testing/TD/DCII	TD Project

3.2 Oracle Database

The Oracle database is located at DFAS Indianapolis and managed by the ISO Application Team. Each TD project has a separate schema configured for a specific test level and release. At the completion of the test the project will be provided to Release Management for archiving and control purposes.

3.3 Client Workstation

Access to the TestDirector® project by testing personnel will be accomplished through client software installed on their PC or a PC designated for testing purposes. The TD client software provides a user interface to the Oracle database for test planning, development, execution and TDR reporting. Guidance is provided for each of these areas in different sections of this User Guide.

3.4 Security

There are several levels of security involved with accessing TD to include workstation, network, Common Directory, TD project and Oracle. For the purposes of this user guide it is assumed that the user has workstation, network and local network directory/file services access. Security considerations and guidance in obtaining appropriate access are provided in the following sections.

3.4.1 Common Directory

Each user will require Novell write/modify privileges to the Common Directory located on the ISO-shared drive. Procedures for submission of requests for access are located in the DCII Weekly Bulletin. The request must indicate write and modify access. To verify access to the Common Directory, open the Windows NT Explorer and highlight the …/TD/DCII directory. Click the right mouse button and select "Trustee Rights."

3.4.2 TestDirector® Project

The specific Test Manager for each test event determines access to TD projects. The Test Manager will provide the TD System Administrator a listing of personnel requiring access and the level of access required based on the following user groups:

QATester: Can create and modify tests in Plan Tests mode, and create test sets, run tests, delete test runs, and report defects in Run Tests mode. This user type is recommended for a quality assurance tester.

Project Manager: Can report new defects, delete defects, and modify a defect's status. This user type is recommended for a project manager or quality assurance manager.

Developer: Can report new defects, and change a defect's status to Fixed. This user type is recommended for a software developer.

Viewer: Has read-only privileges in a project.

To facilitate the generation of test discrepancy reports (TSR); the assigned TD User ID will be the same as the internal CMIS ID. The initial password will be set to "newuser" which should be changed by the user after the first login.

Note: Creation of TDRs will require that the user have valid user accounts in MS Outlook and ISO/DCD CMIS. The user must have a login to both of these applications for the TDR to pass from TD to CMIS.

3.4.3 Oracle

TestDirector® will access the Oracle database using the schema owner ID and Password assigned in the project creation process. Individual users do not require an individual Oracle account.

4.0 Software Installation

4.1 Installing Oracle Client

There are three stages to installing an Oracle 8.05 client for TestDirector®. First, you install the client software on your computer in accordance with the OMD Oracle client installation procedures. Next, ensure the TNSNames.ora file is the most current and you are able to connect to an Oracle database with SQL*Plus. Finally, you must configure the Borland Database Engine.

To configure the Borland Database Engine:

- Choose Start > TestDirector > BDE Configuration Utility
- In the Configuration tab, click the Drivers > Native > Oracle icons.
- In the Definition list:
  - For the value of the DLL 32 field, select SQLORAS.DLL
  - For the value of the Vendor Init field, select OCI.DLL
- Click Apply.

4.2 Installing TestDirector® Client

The Oracle client installation must be performed before installing of the TD client if an Oracle project is to be used. Exclusive use of a Microsoft Access database does not require installation of the Oracle client.

The TD client software installation will install a minimum set of configuration components from the network and create icons, which are actually shortcuts points back to the network drive.

- If an older version of TestDirector is currently installed it should be uninstalled at this time.
- Open Windows NT Explorer and navigate to the location that has the TD setup.exe (TSO-shared\dcii-shared\testing\TD\bin)
- Double Click on the setup.exe
- Accept all of the "Typical" default entries, which will configure TD for the standard DCII installation.
- Upon completion of installation the PC must be restarted.

5.0 Startup and Login

5.1 Starting the Program

To start TestDirector, either click the TestDirector icon in the TestDirector program group or click **Programs > TestDirector > TestDirector** in the **Start** menu. The Login window opens.

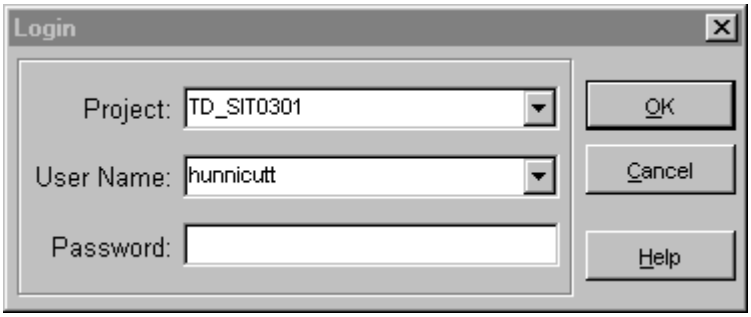

Figure 2 Login Screen

To open an existing project:

STEP	ACTION	DETAIL	RESULTS
1	Choose	Project from **Project List**	
2	Type	User Name and Password Initial password will be set to **newuser**. The password should be changed on the initial login.	
3	Click	OK Button	TestDirector opens in the mode (Plan Tests, Run Tests, Track Defects) in which you last worked during your previous TestDirector session.

6.0 TestDirector Views

The three (3) primary views are Plan Tests, Run Tests and Track Defects. Each view has unique reports, analysis and filters specific to the selected view. If the desired report is not visible in the menu ensure the correct view tab is selected.

6.1 Plan Tests

6.1.1 Category Usage

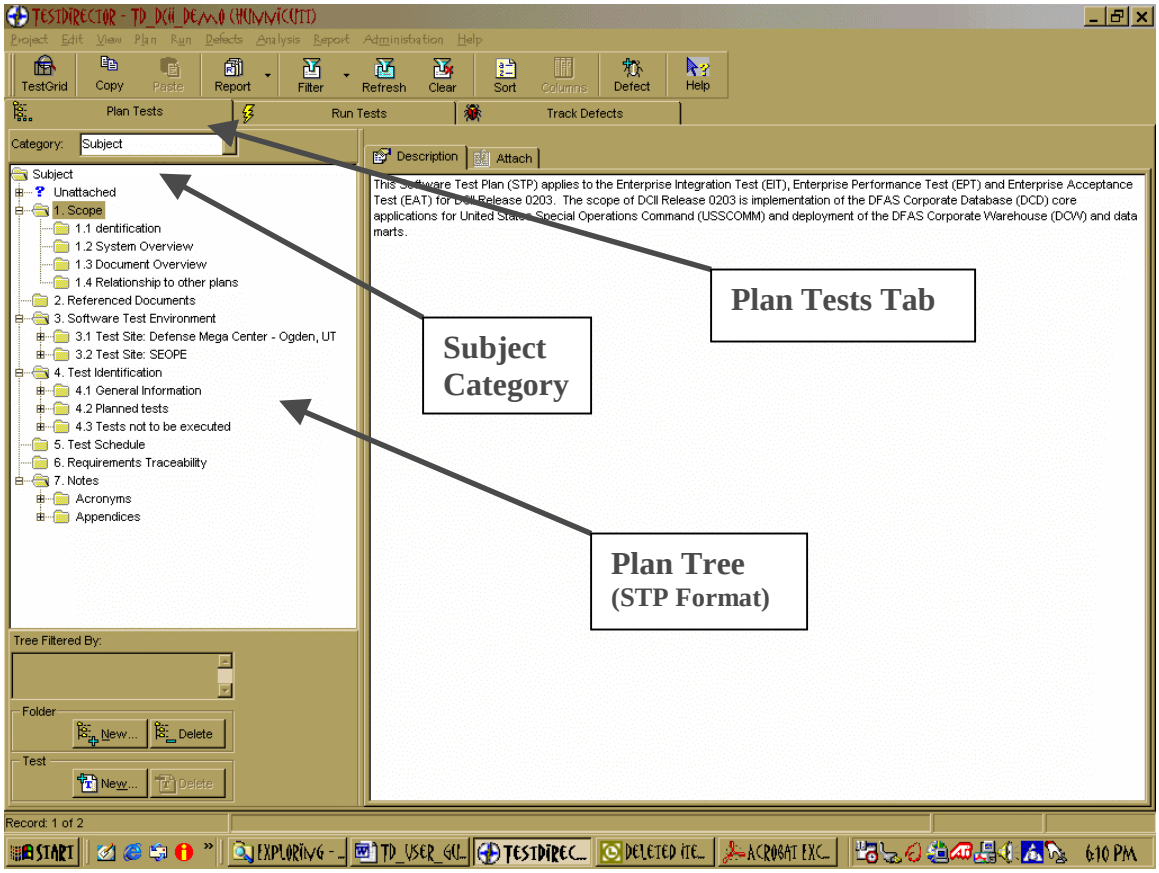

Figure 3 Plan Tests View with "Subject" Category Displayed

The Plan Tests view can be displayed by category as follows:

Subject: The Plan Tree will display in the format prescribed for the DCII Software Test Plan (STP). The Description Tab will contain the narrative specific to that section of the software test plan. Each folder is numbered to enable printing of the STP directly from TestDirector® therefore the folders should not be renumbered or renamed.

Requirements: Each requirement category (FFMR, MSRL, SCR, etc.) will have a folder containing the scripts for each of the requirements tested. For example: the FFMR folder will have scripts, which test each of the FFMR requirements. If a test script satisfies more than one (1) requirement it will be placed in the Multiple folder.

Business Processes: Each business process category will have a folder containing the scripts for each business process tested. This feature is optional.

6.1.2 Review Test Script

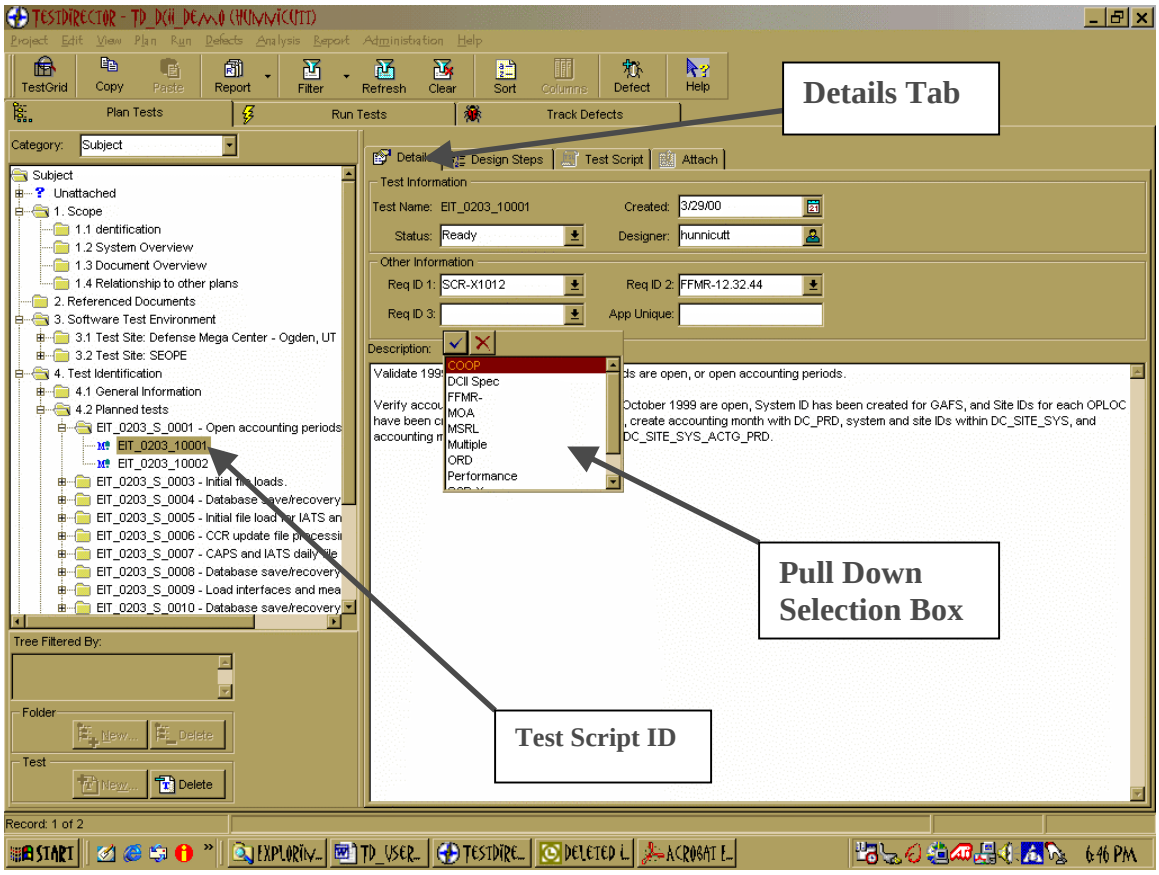

Figure 4 Plan Tests View with Test Script Details Tab Displayed

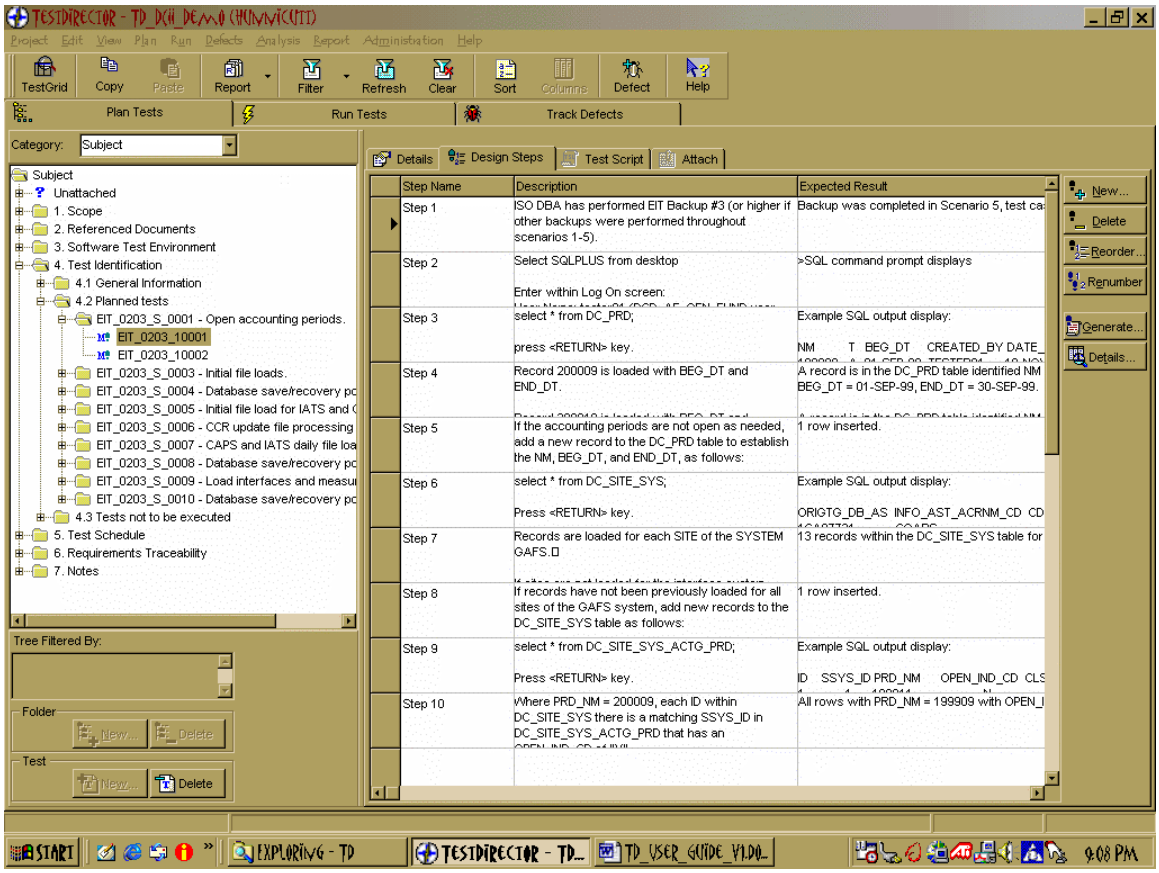

Figure 5 Plan Tests View with Test Script Design Steps Tab Displayed

6.1.3 Create Test Script

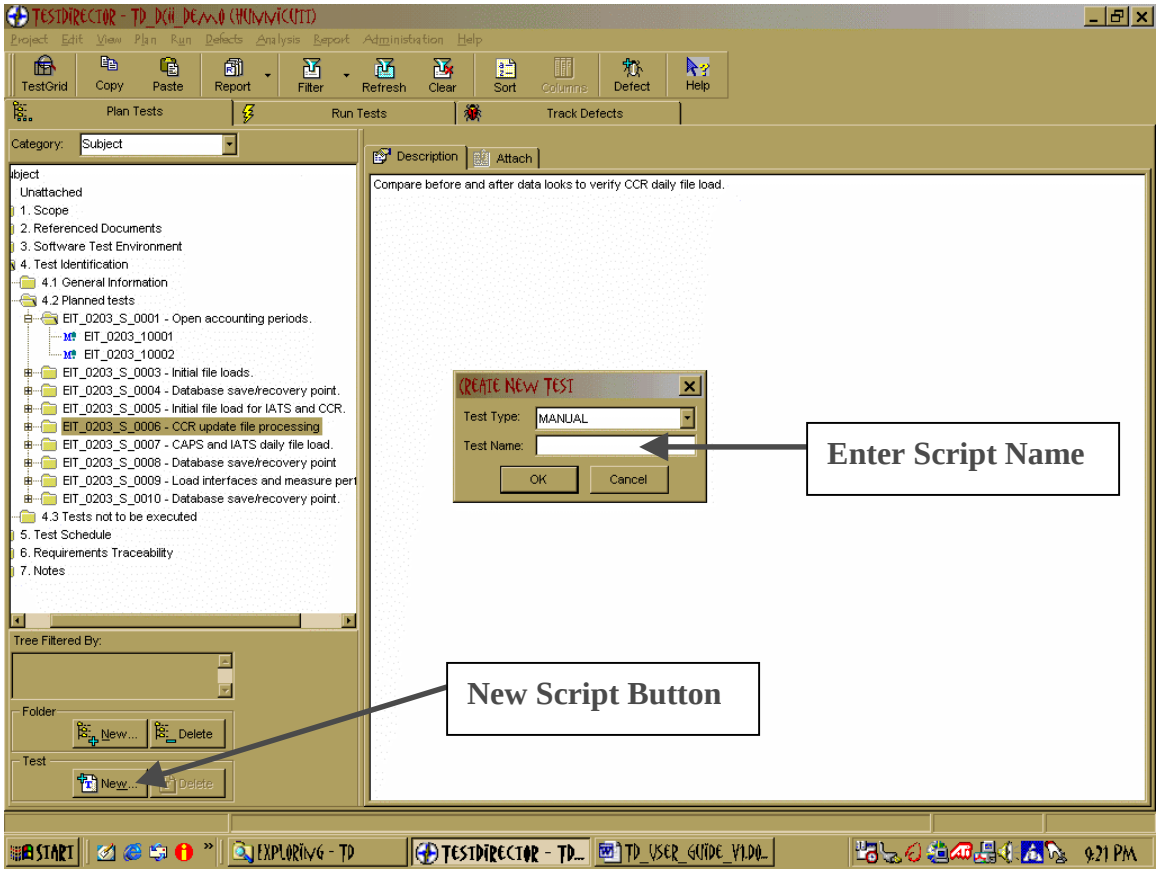

Figure 6 Plan Tests View with Create New Script Dialog Box

STEP	ACTION	DETAIL	RESULTS
1	Select	Folder where the test scripts will be located.	Folder is highlighted
2	Click	New button	Create New Script dialog box displays.
3	Select	Test Type MANUAL	MANUAL displays
4	Enter	Test Name	Test Name displays
5	Click	OK Button	The Script Details Tab displays with: Created: Current Date Status: Design Designer: User ID

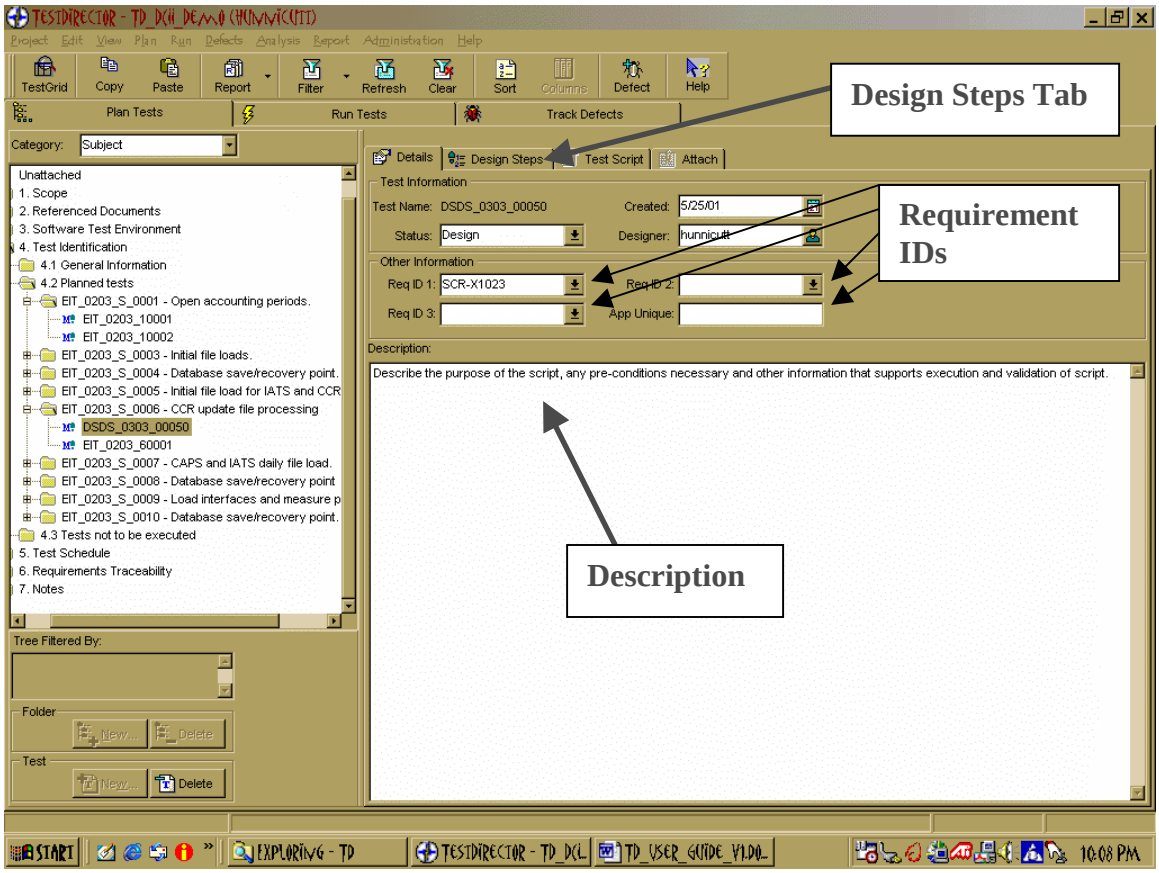

Figure 7 Plan Tests View with Test Script Description

STEP	ACTION	DETAIL	RESULTS
6	Select	Req ID 1 Pull Down Selection Arrow	Requirement categories display
7	Select	Desired category	Category display
8	Enter	Requirement ID number next to category Note: Continue to enter requirement Ids until all requirements are identified.	ID number displays next to category
9	Enter	Description of script	Description narrative displays
10	Click	Design Steps Tab	Tab displays

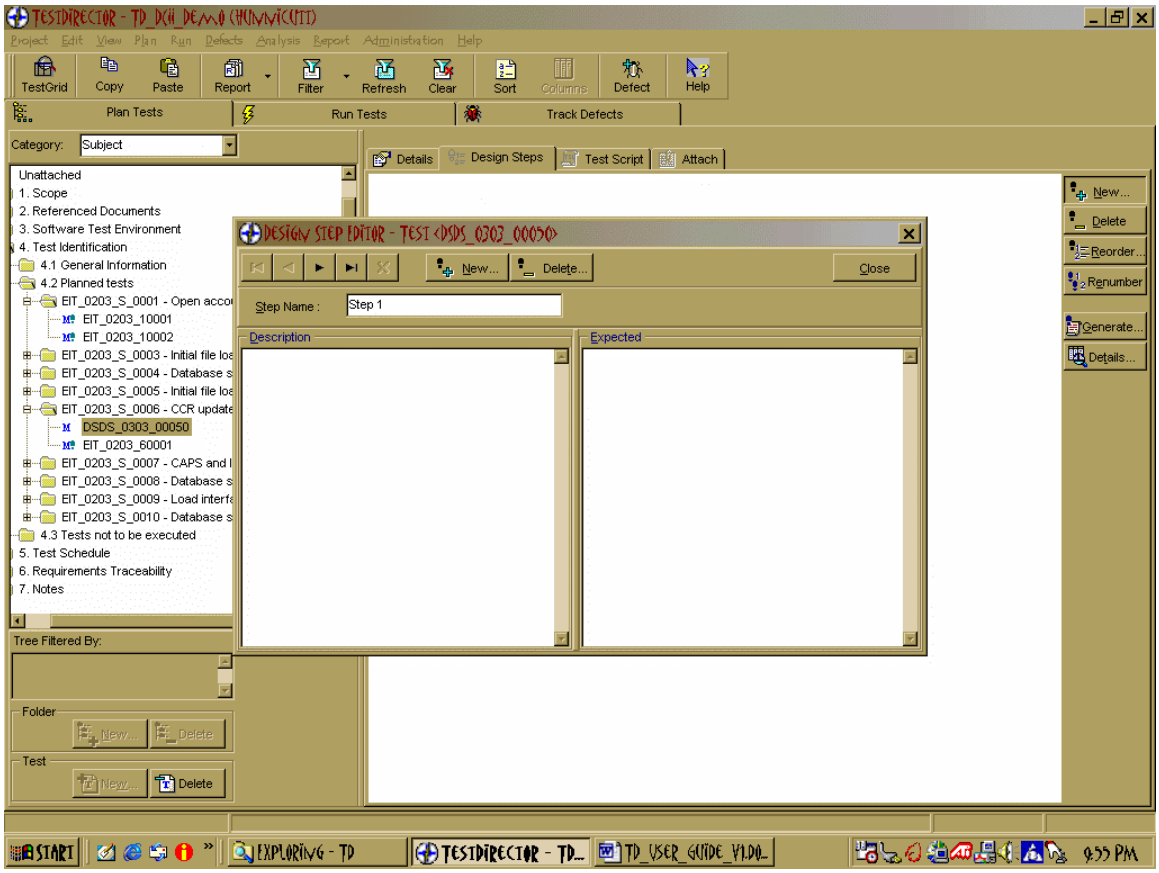

Figure 8 Plan Tests View with Design Steps

STEP	ACTION	DETAIL	RESULTS
11	Click	New button	Design Steps Editor displays
12	Select	Desired category	Category display
13	Enter		
9	Enter		
10	Click		

6.2 Run Tests

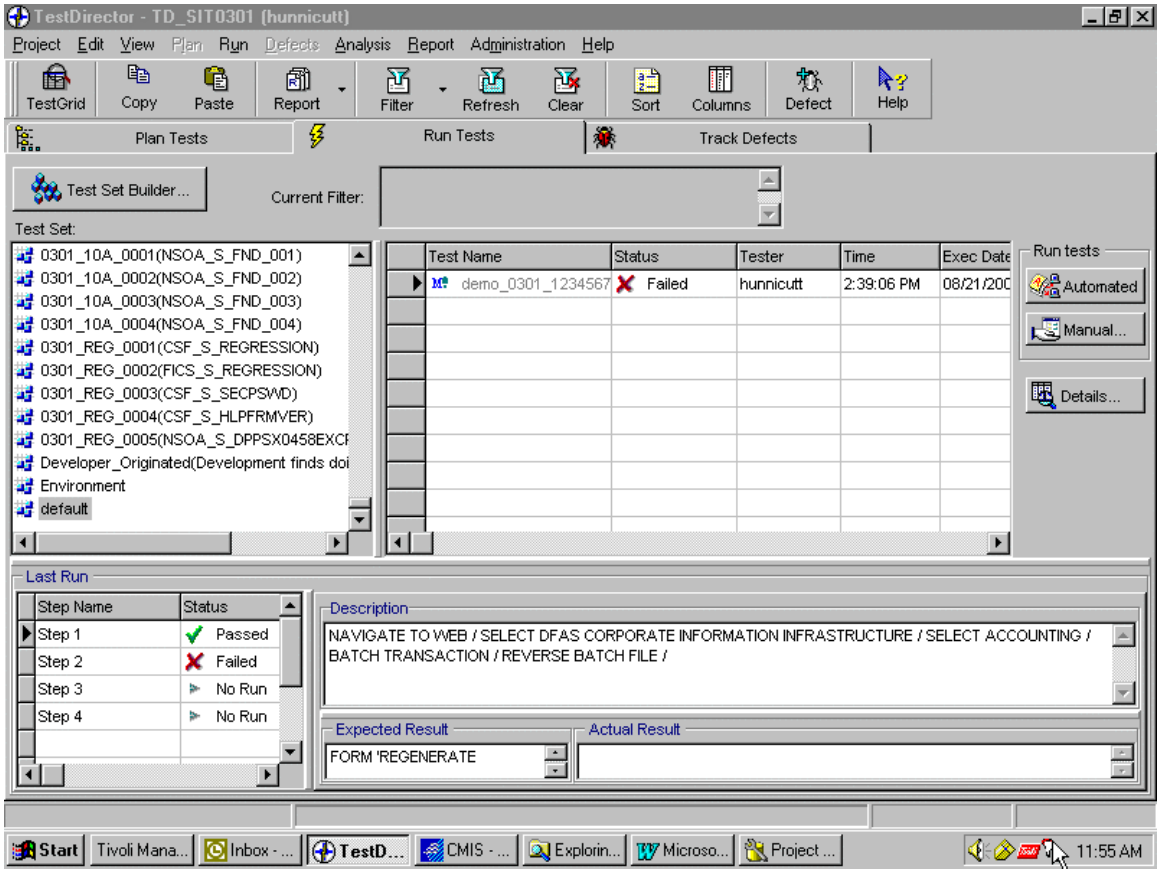

Figure 9 Run Tests View

6.3 Track Defects

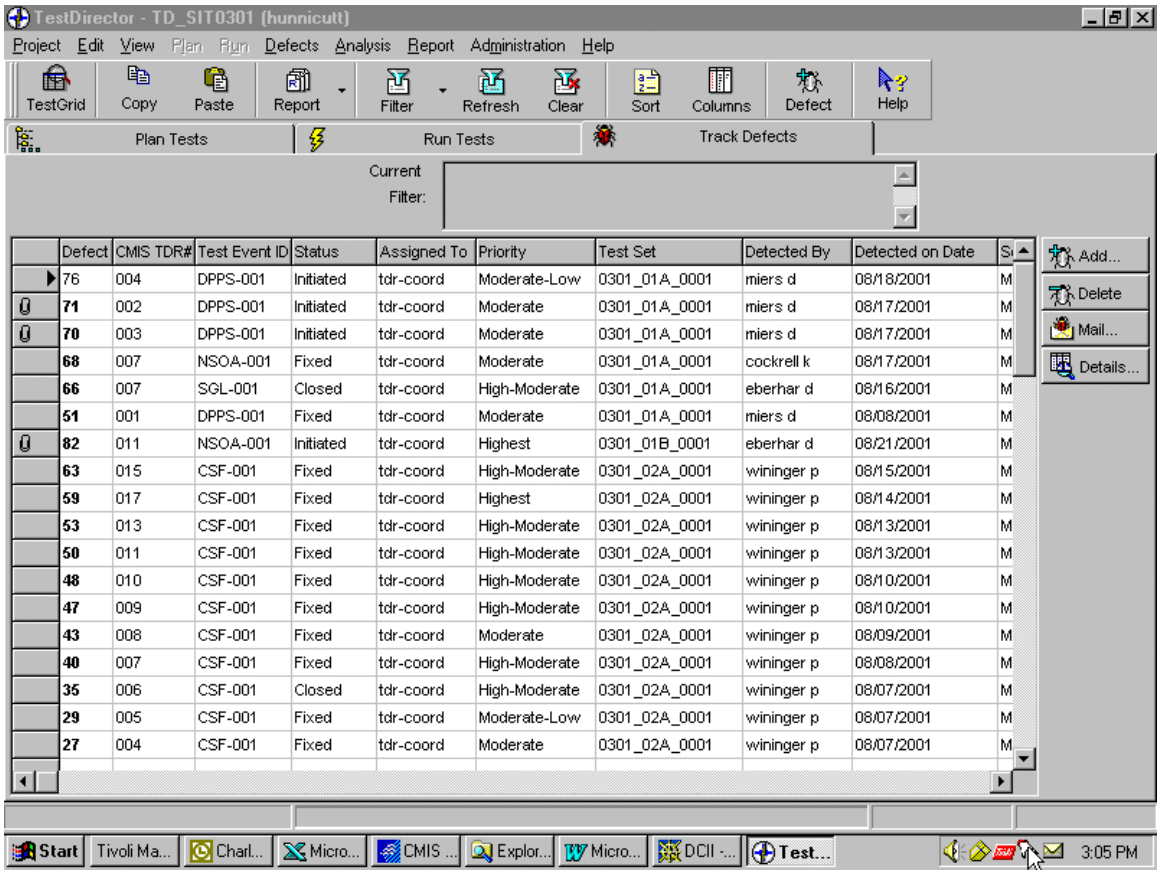

Figure 10 Run Tests

7.0 TDR Procedures

Test Discrepancy Reports (TDR) will be created in TestDirector® then forwarded to CMIS via an automated interface. TDRs should be created from the Run Tests tab, Run Window to provide a link between the TDR and the actual test set that identified the discrepancy. Additionally, this method will automatically insert the Script Name, Run ID, Step Number and description of the test step directly into the description of the TDR.

The CMIS interface is designed to perform specific actions based on the Status field of the TDR. Assignment of each status condition will result in the transfer of specific data elements between TD and CMIS. The following table describes the status conditions available.

From	To	Action
	New	Tester creates new bug with status of New
New	Canceled	New Bug canceled – not sent to CMIS
New	Initiated	New Bug created and forwarded to CMIS
	Returned	CMIS returns TDR and populates TDR# field
Returned	Fixed	Tester performs retest and verifies fix
Returned	Not Fixed	Retest failed – forwarded back to CMIS
Returned	Canceled	TDR status changed to Canceled in CMIS
The following Status Conditions are pending SCR implementation.		
	Converted	Converts TDR to an SCR
	Transfer	Transfers to a different Test Level or Event
	Closed	This will replace the "Fixed" condition

Status Change Conditions

To ensure the proper email notification is generated upon creation of a TDR in TestDirector your CMIS Mail feature must be configured properly. Please check to verify that your CMIS Mail is configured with your e-mail logon/address as in the following example:

External e-mail Logon ID: jack.hunnicutt
External e-mail Address: jack.hunnicutt@dfas.mil
Mail Interval: 1

7.1 Create New Bug

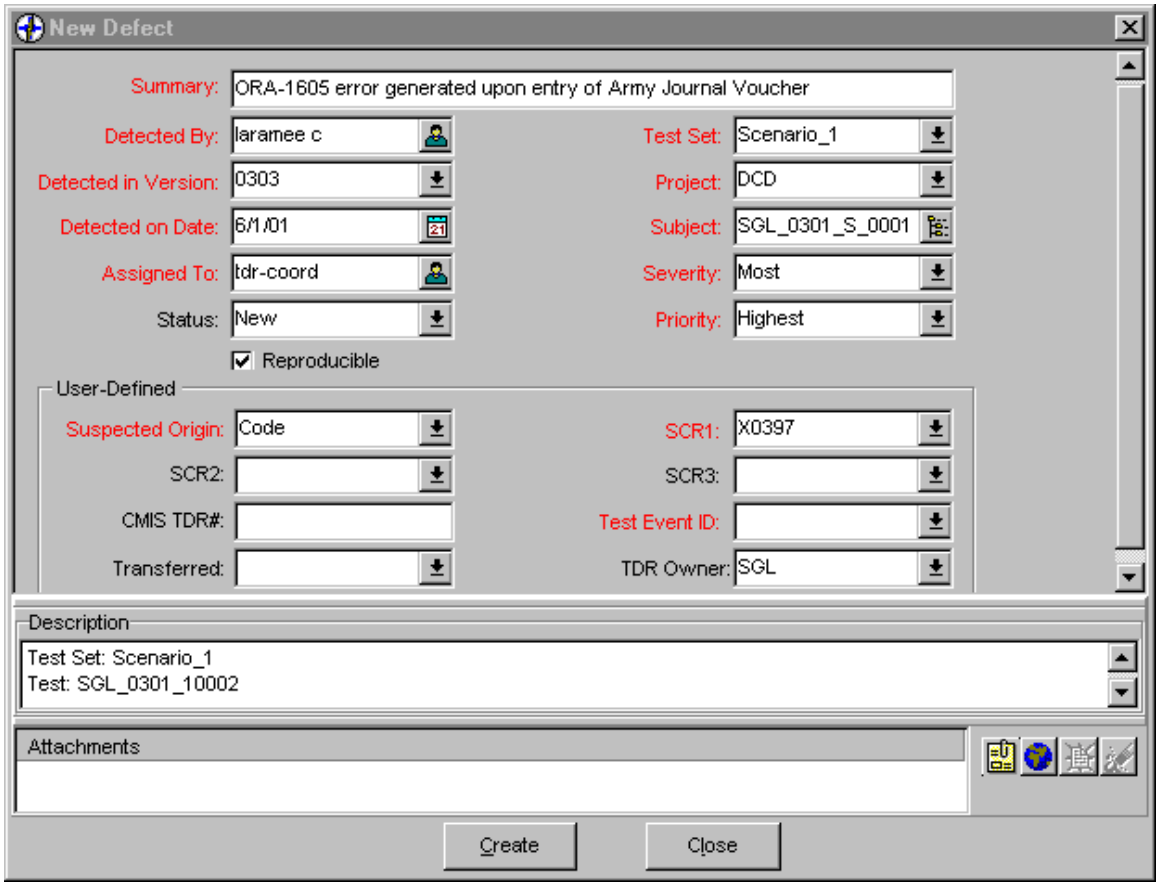

Figure 11 New Defect Screen

STEP	ACTION	DETAIL	RESULTS
1	Select	Add Defect button	New Defect screen appears
2	Enter	Data into each Required (Red) Field	Data populated in fields
3	Verify	Status is set to "New"	Status is New
4	Paste	TDR Details Template into the Description field	Template displays in Description field
5	Enter	Appropriate data for each of the Template Categories.	Details data entered
6	Click	Yellow Attachment button to add an attached file.	Navigation window displays and desired file is selected.
7	Click	Create Button	Message indicating Bug ID Display.

7.2 Initiate TDR Generation

Once the new bug has been reviewed and it is determined that it should be forwarded to CMIS as a TDR the Status will be changed to Initial. The Tester changes the Status from New to Initial as follows with the resulting actions of the TD_CMIS interface:

STEP	ACTION	DETAIL	RESULTS
1	Select	Track Defects Tab	TDR listing will display
2	Scroll	To the Defect	Defect is visible in listing
3	Verify	Detected By fields contains a user name with the role of Technical Action Manager within CMIS	TAM User Name selected
3	Click	In the Status box	Pull Down list of values will display
4	Select	Initial	Initial displays in the Status column
5	Click	Another row in the listing or to another screen	TD project database will update the Status.
6	Update	TD will forward the New Bug data elements to CMIS:	A TDR will be created in CMIS with this data displayed.
See Appendix G for a complete listing of data elements passed to CMIS			

7.3 Retest and TDR Fixed TDR

A TDR that has been resolved by the development team and ready for a re-test will display the status of "Returned" in the Track Defects tab. Additionally, the CMIS TDR# will be populated with the TDR number assigned by CMIS. This field will remain empty until the status is set to "Returned" by CMIS or until the field is manually populated.

After a successful retest of the failed condition, the tester will change the status to Fixed as follows:

STEP	ACTION	DETAIL	RESULTS
1	Select	Track Defects Tab	TDR listing will display
2	Scroll	To the Defect	Defect is visible in listing
3	Enter	If desired, additional comments may be added to the Description field prior to final closure.	Comments are reflected in the Description field
4	Click	In the Status box	Pull Down list of values will display
5	Select	Fixed	Fixed displays as Status
6	Click	Another row in the listing or to	TD project database will

		another screen	update the Status.
7	Update	TD forwards CMIS status Fixed	CMIS will close the TDR.
See Appendix G for a complete listing of data elements passed to CMIS			

7.4 Retest and TDR Not Fixed

In the event that a TDR is returned for retest and again fails the test condition, the TDR will be sent to the development team for rework with the status of "Not Fixed."

STEP	ACTION	DETAIL	RESULTS
1	Select	Track Defects Tab	TDR listing will display
2	Scroll	To the Defect	Defect is visible in listing
3	Enter	Additional detail in the Description field explaining the nature of the failure.	Comments are reflected in the Description field
4	Click	In the Status box	Pull Down list of values will display
5	Select	Not Fixed	Not Fixed displays in status
6	Click	Another row in the listing or to another screen	TD project database will update the Status.
7	Update	TD will forward the Not Fixed status to CMIS:	CMIS will change the status to Initiated.
8	Forward	From CMIS, forward the TDR to the TDR-Coordinator	CMIS forwards TDR
See Appendix G for a complete listing of data elements passed to CMIS			

7.5 Canceled TDR

A TDR can be canceled because the TDR is not valid or was entered into CMIS incorrectly.

STEP	ACTION	DETAIL	RESULTS
1	Contact	TDR-Coordinator to have the TDR Returned to Originator	Status of TDR changes to "Returned" in TD
2	Select	Track Defects Tab	TDR listing will display
3	Scroll	To the Defect	Defect is visible in listing
5	Click	In the Status box	Pull Down list of values will display
6	Select	Canceled	Canceled displays in status

7	Click	Another row in the listing or to another screen	TD project database will update the Status.
8	Update	TD will forward the Canceled status to CMIS:	The status in CMIS will change to Canceled.

7.6 TDR Modifications

There are several situations which may require that the TDR be modified such as to update the Description, modify Actual Origin, entering results from a retest, transfer to another Test Event or converting to an SCR. The following sections provide specific guidance on making modification to ensure the CMIS interface updates the data elements appropriately.

7.6.1 Modify Description / TDR Details

If the Tester needs to change or modify the Details Section of a TDR after it has been forwarded to the TDR-Coordinator; you must perform the following steps:

STEP	ACTION	DETAIL	RESULTS
1	Contact	TDR-Coordinator to have the TDR Returned to Originator	Status of TDR changes to "Returned" in TD
2	Select	Track Defects Tab	TDR listing will display
3	Scroll	To the Defect	Defect is visible in listing
4	Edit	Description field as necessary	Fields updates
5	Click	In the Status box	Pull Down list of values will display
6	Select	Not Fixed	Not Fixed displays in status
7	Click	Another row in the listing or to another screen	TD project database will update the Status.
8	Update	TD will forward the Not Fixed status to CMIS:	The status in CMIS will change to Initiated.
9	Forward	From CMIS, forward the TDR to the TDR-Coordinator	CMIS forwards TDR

7.6.2 Modify TDR After Closure

If it is necessary to change a TDR after it has been changed to a "Fixed" status in TestDirector perform the following steps.

STEP	ACTION	DETAIL	RESULTS
1	Select	Track Defects Tab	TDR listing will display
2	Scroll	To the Defect	Defect is visible in listing
3	Click	In the Status box	Pull Down list of values will display
4	Select	Not Fixed	Not Fixed displays in status
5	Click	Another row in the listing or to another screen	TD project database will update the Status.
6	Update	TD will forward the Not Fixed status to CMIS:	The status in CMIS will change to Initiated.
7	Contact	TDR-Coordinator to return the TDR to Originator	Status of TDR changes to "Returned" in TD
8	Edit	Description field or other field as necessary	Fields updates
9	Click	In the Status box	Pull Down list of values will display
10	Select	Fixed	Fixed displays as Status
11	Click	Another row in the listing or to another screen	TD project database will update the Status.

7.6.3 Enterning Results after Retest

The Tester may enter results following the retest of a TDR by editing the description field. The description field must be updated prior to closing the TDR. The "R&D Comments" field is reserved for development and cannot be modified by the Tester.

7.6.4 Transfer to Another Test Event

Pending implementation of CMIS interface SCR

7.6.5 Convert to SCR

Pending implementation of CMIS interface SCR

8.0 Roles/Responsibilities

8.1 DCII Test Director

- Provide funding and other resources as necessary to implement TD.
- Review and approve implementation plan.
- Initiate actions to obtain necessary server access and storage space.

- Purchase software upgrade/additional licenses as necessary.

8.2 TD System Administrator

- Prepare implementation plan.
- Perform system administrator duties.
- Establish and implement system security policy.
- Create user guide.
- Create training materials and facilitate training.
- Customize TestDirector® database to provide traceability and satisfy established requirements.
- Troubleshoot and repair problems encountered with TD.
- Update software with new releases/patches as required.
- Review maintenance agreement renewals and provide necessary documentation for purchases as necessary.
- Initiate System Change Request for CMIS interface as necessary.

8.3 Test Manager(s) and Test Coordinator(s)

- Evaluate prototype and provide detailed recommendations for enhancement.
- Schedule personnel for TD user training.
- Provide and schedule facilities for training.
- Employ TD throughout the test event with 100 per cent participation by testers.
- Monitor actions of testers to insure TD procedures are followed.
- Provide the TD System Administrator with the event specific data (CMIS event configuration, User Names, User Group Requirements).

8.4 ISO Application DBA

- Create TD projects or provide necessary database access to TD System Administrator.
- Monitor Oracle database for performance and system degradations.
- Initiate corrective actions for problems associated with schema, database or platform.

8.5 CMIS System Administrator

- Provide programming for interface to TD.
- Troubleshoot interface and TDR generation problems as necessary.

Appendix A (TBD) **CMIS Interface Data Elements**

Appendix B (TBD) **Schema Modifications**

Appendix C User Account Request Form

TestDirector® User Account Request

From:_____

TestDirector® Project Name: _____

A – Add **C – Change** **D - Delete**	**CMIS Internal ID** **Or** **Enter NONE**	**Full Name**

Appendix E Test Scenario/Script Naming Conventions

http://www.dfas.mil/technology/pal/sestds/testing/std_numb_conv_v1.doc

Appendix F TDR Description Template

```
||SCRIPT _||
||SCENARIO _||
||BLOCK _||
||ROLE _||
||SID ||
||CLIENT VER _||
||APPL _||
||E  STEP _||
||PROBLEM _||
PROBLEM DETAILS:
DATA:
RECOMMENDATION:
```